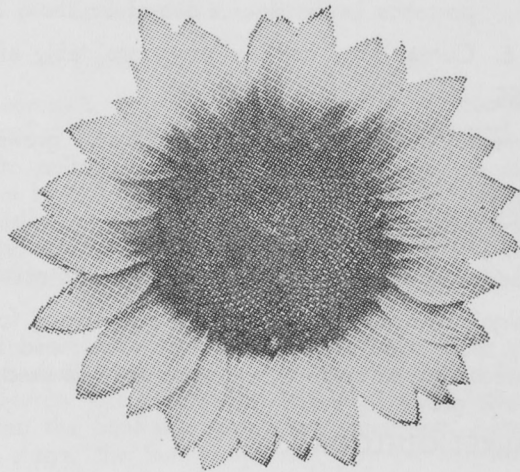


# SUNFLOWER PRODUCTION

in

WESTERN CANADA



FEDERAL GRAIN LIMITED

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# Sunflower Production

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## WHY GROW SUNFLOWERS ?

Sunflowers deserve careful consideration by farmers in the southern parts of Western Canada, because:

1. Sunflowers are a cash crop which can be as profitable as cereal crops. The cost of producing Sunflowers is about the same or lower than the cost of growing cereal crops.
2. Growing Sunflowers helps to reduce the hazards of a one-crop wheat or grain economy.
3. Sunflowers are normally grown as a stubble crop and can be used effectively to extend the crop rotation. In this way, a farmer can obtain better use of his land resource.
4. Growing Sunflowers helps to distribute demands on farm labour and machinery, especially at harvest time.
5. When the stocks are left standing, they reduce the hazards of wind erosion. In addition, snow is trapped effectively during the winter, providing extra moisture in the spring, which is often of critical importance in the drier areas of Southern Saskatchewan and Alberta. ....
6. Cereal crops can be grown profitably after Sunflowers.

## USES

There are two main types of Sunflowers grown as a commercial crop. The main acreage is devoted to the production of high oil content Sunflowers. Sunflower oil is a high quality edible oil used in Canada chiefly as a cooking and salad oil but in many other countries is also used in margarine production. The oilcake meal, a by-product of the processing of Sunflower seed is valued as a high quality, high protein livestock feed supplement.

A significant market has also been developed for Sunflower seed in the specialty seed trade such as roasting, hulled seed and for bird feed. The small-seeded, high oil content Sunflowers may be used for bird feed; a large-seeded type is grown for roasting purposes.

## MARKET OUTLOOK

Sunflowers grown for oil have an almost unlimited market. The domestic market could absorb far greater quantities of Sunflower oil than is available at present. Sunflower oil competes in the world market with such other edible oil crops as Soybeans, Rapeseed, etc. Sunflower oil, however, has a specialty demand as a high quality oil.

Japan especially is looking for a dependable source of supply of Sunflower oil. The increased production in 1971 is designated for the Japanese market. Federal Grain Limited initiated a program in 1970 to explore the feasibility of growing Sunflowers in Southern Alberta and Saskatchewan. As a result of the 1970 experience, Federal Grain has been successful in negotiating a contract with Japanese buyers for 1971 for about 22 million pounds of Sun-

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flower seed. A further increase in production will undoubtedly result in the next few years, if the 1971 crop is a success.

There is an increased demand for hulled seed in the baking and confectionery industry. Sunflower meats are used in the manufacturing of chocolate bars where they can replace commonly used nuts. The demand for bird feed is increasing. The market for the large seeded, roasting type Sunflowers is limited and is not expected to show a significant increase.

## ADAPTATION

Sunflowers require about 95 to 125 days to mature, depending on the variety used and on the growing season weather conditions. Sunflowers are adapted to a large range of soil types. They are generally grown on lighter soils since this makes possible more effective weed control by harrowing. Sunflowers can also be grown on the heavier clay soils but weed control can be more difficult. The crop is more resistant to drought and frost than corn. The young plants will survive considerable frost in the spring. In the fall, frost will damage Sunflowers only if they are very immature. Otherwise, heavy frosts are required for drying out the mature Sunflower heads.

## VARIETIES

The **high oil content varieties** recommended are Krasnodarets and Peredovik. Krasnodarets is early maturing and recommended for Saskatchewan and Alberta. Both varieties are tolerant to leaf mottle but susceptible to rust.

**Large seeded Sunflowers — Commander**, a selection out of the old Mennonite variety, produces a higher percentage of large seed and is the only variety recommended for this type of production. Commander is susceptible to leaf mottle and rust.

The variety **Admiral** is often grown for bird feed. Another variety, named **Valley**, is also grown for bird feed, but because it is high in oil content, it can be used as an oilseed type. Valley is resistant to rust and tolerant to leaf mottle.

## PLANTING

### Spacing

Sunflowers are grown in three different ways:

1. Traditionally, in single rows, spaced 36" to 42" apart. This method is used by most Sunflower growers in Manitoba where row-crop equipment is more generally available. A row-crop tractor, planter and cultivator are pieces of equipment required for good planting and cultivation. This is probably the best way of growing Sunflowers, provided row-crop equipment is available.
2. Solid-seeded, in 6" or 7" rows or in scattered pattern with a discer. This method is recommended for Saskatchewan and Alberta, where row-crop equipment is not generally available. A regular grain drill or disk can be used for planting. The press drill, if available, is probably the best implement for planting Sunflowers.

3. In single or double rows, spaced 8' to 16' apart. This method of planting Sunflowers can be used where farmers may have large fields of summerfallow. The advantage of wide-row Sunflower production is that this will cut down on wind erosion. Secondly, the Sunflower stubble has excellent snow holding capacity.

## **DATE OF PLANTING**

Sunflowers should be seeded early. The best time for planting Sunflowers is from the first week of May to May 25th. Sunflower seedlings can survive considerable amount of frost.

## **DEPTH OF PLANTING**

Sunflowers should be seeded as shallow as possible in order to obtain quick germination, preferably 1 to 2 inches deep. However, Sunflowers can be seeded to a depth of 3 to 4 inches if the top layer of soil is dry. The important thing is to seed the Sunflowers into moisture.

## **RATE OF SEEDING**

For the 36" to 42" row spacing — 4 to 5 lbs. of seed per acre.

For solid-seeding — 6 to 8 lbs. per acre.

For the 8' to 16' spacing —  $2\frac{1}{2}$  to  $3\frac{1}{2}$  lbs. per acre.

## **SEED TREATMENT**

Since Sunflowers are seeded early, a non-mercuric seed dressing is recommended for protection against seedling diseases. Sunflower stands can be thinned out very easily by wire worms. Where the presence of wire worms is suspected, an insecticide treatment should also be used.

## **SEED BED PREPARATION**

Since Sunflowers are seeded mostly into stubble, one cultivation prior to planting is recommended in order to control weeds and to help warm the soil. A firm, even seed bed is essential to permit even depth of planting but particularly to help with harrowing for weed control later on. An additional harrowing and packing after planting is often helpful if the seed bed is not firm enough.

## **PLANTING EQUIPMENT**

A regular corn planter or sugar beet planter is used for seeding the 36" to 42" spacing. Special plates will be necessary in order to produce the correct seeding rates and to prevent damage to the seed.

For solid-seeding, a regular grain drill, disk, hoe drill or press drill can be used.

## FERTILIZERS

Experimental results have shown that fertilizers will promote earlier maturity and usually produce increased yields sufficient to warrant the investment of fertilizers. A soil test will help to determine what level of fertility is present in the field to be seeded. As a general recommendation, Sunflowers require about 40 lbs. of nitrogen and about 20 lbs. of phosphorous.

## WEED CONTROL

Weeds have been the main reason for poor yields in Sunflower crops last year. Weeds must be controlled in order to produce a paying crop of Sunflowers.

The herbicides which are recommended for weed control in Sunflowers are as follows:

**For Wild Oat Control** — Avadex at  $1\frac{1}{2}$  to 2 lbs. per acre applied preplanting.

— Carbyne at 4 to 5 oz. per acre applied after emergence of the crop and Wild Oats.

**Wild Oat and**

**Wild Millet Control** — Eptam at 3 lbs. per acre.

— Treflan at  $\frac{3}{4}$  to 1 lb. per acre.

For both of these chemicals, it is extremely important to incorporate immediately after application. These chemicals will also control most broad-leaved annuals.

SUNFLOWERS ARE EXTREMELY SENSITIVE TO HERBICIDE DRIFT, ESPECIALLY 2, 4-D AND MCPA. Great care must be taken when spraying grain fields close to Sunflower fields, to prevent herbicide drift from being blown onto the Sunflower field.

Cultural practices are effective ways of controlling weeds provided the weatherman co-operates; also less costly than some of the herbicides. In harrowing, it is recommended to harrow just before the crop emerges if weeds are present. **Do not harrow when the Sunflower plants are emerging.** After the plants are in the two-leaf stage, the Sunflower crop may be harrowed as often as necessary to keep weed growth under control. It is a common practice to harrow three to four times after emergence of the crop. Harrowing should be done in the afternoon to secure the best weed kill with the least damage to Sunflower plants. Harrowing requires courage — but it is a very effective and economical way of controlling weeds.

## HARVESTING

Sunflowers are usually ready for harvesting about the middle of October. A stripper attachment is required to do an effective job of harvesting. A complete attachment costs about \$400. The cost will vary only slightly with the type and width of the attachment required. These attachments can be obtained by special order from Federal Grain Limited.

Moisture content of the seed should be not more than 12% for safe storage under cool conditions. Seed above 13% moisture is likely to spoil unless artificially dried. Sunflower seed is purchased on a 9.5% moisture content.

The combine should be carefully adjusted to prevent dehulling and loss of seed. To keep the head breakage to a minimum, a rub-bar type combine is recommended. The separator speed should be normal but the cylinder speed should be reduced to 1/3 or less and the concaves opened widely. The wind should be adjusted to give a clean sample of seed but care should be taken not to blow the seed into the chaff.

## **DISEASES AND INSECTS**

Sunflowers are subject to such diseases as Sunflower rust, Scierotinia wilt, verticellium wilt, downy mildew and septoria. In most Sunflower fields, it is possible to find one or two of these diseases although new areas of production should be relatively free of these diseases. In order to prevent a build-up of Sunflower diseases, Sunflowers should not be grown on the same land more than once every five years.

The Sunflower moth is a serious insect pest since the larvae tunnel through the seeds on the flowering heads. Insecticides for control are available. Observe your field closely since timeliness in control is important. Because recommendations on insecticides are changing so quickly, it is important to consult the contracting company or the local agricultural representative for the latest recommendation.

## **DO SUNFLOWERS PAY ?**

Sunflowers must be able to compete with other crops in providing a net return per acre to the grower. In planning Sunflower production, it is important to plan for good yields. An "average crop" never pays off. Good yields are produced by following closely the recommendations for planting, weed control and fertilization.

A good yield of Sunflowers is 1,200 lbs. to 2,000 lbs. per acre. Yields under 1,000 lbs. per acre indicate some serious production problems.

Assuming a price of 4¢ per pound (our contract price for 1971), a farmer can expect a gross return of \$40.00 to \$70.00 per acre or higher. Keeping in mind that production costs are no more than for cereal crops, and that delivery is guaranteed to Federal Grain contract holders, the Sunflower crop would appear to be a good alternative for growers in Southern Alberta and Saskatchewan to consider for 1971.

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The objective of the Agro Information Division of Federal Grain Limited is to provide reliable, up-to-date information on various phases of agriculture to our many customers and to Company personnel. One form of this information is our monthly Seedtime and Harvest release.

Information is available on request on many phases of Agriculture including the following:

**General crop production problems.**

**Weed identification and control, Soils and Fertilizers.**

**Insects identification and control, Herbicides and Insecticides.**

**Plant Disease identification and control, and Special Crops.**

The Agro Information Division welcomes requests for information at all times. Please write to:

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